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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,257	02/06/2006	Tomoo Sugawara	4670-0120PUS1	3057
2292 7590 01/08/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER TESKIN, FRED M	
			ART UNIT	PAPER NUMBER
			1713	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		01/08/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/08/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

**Office Action Summary**

Application No.

10/567,257

Applicant(s)

SUGAWARA, TOMOO

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>See Continuation Sheet</u> . | 6) <input type="checkbox"/> Other: ____  |

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :20060206; 20061006; 20061113; 20060508.

Claims 1-6 are currently pending and under examination herein.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over GB 1533124-A, alone or in view of EP 0283719 ("Hara").

The claimed subject matter relates to a polymerizable composition comprising;

- a cycloolefin monomer,
- a flame retardant,
- a metathesis polymerization catalyst,

wherein a monomer having a condensed ring made of an aliphatic ring having one or more carbon-carbon double bonds and an aromatic ring is used as the cycloolefin monomer.

GB '124 discloses ring-opening (i.e., metathesis) polymerization products obtained by subjecting chloro-norbornene derivatives having at least one chlorine atom or a hydrocarbon group substituted with one or more chlorine atoms or a mixture of such derivatives and at most 50 mole percent of one or more other polymerizable unsaturated cyclic compounds to a ring-opening polymerization using a catalyst system corresponding to applicant's "metathesis polymerization catalyst" (see GB '124 at page 2, ll. 16+). As unsaturated cyclic compounds copolymerizable with the chloro-norbornene derivatives of GB '124, aromatic norbornene derivatives and aromatic norbornadiene derivatives are mentioned, see page 3, lines 38-45; the latter derivatives are more specifically described by general formulae (VIII) and (IX) (see page 9, lines 20+), which correspond to applicant's monomer, in that they depict a norbornene ring condensed with a benzene or naphthyl ring.

GB '124 sets forth specific examples of ring-opening polymerization of a mixture comprising 5,6-dichloromethyl-bicyclo-[2.2.1]-heptene-2 (monomer A) and specific phenyl-substituted norbornene monomers (monomer B) (see, Examples 50, 51, 57, 58).

Giving the term "flame retardant" its broadest reasonable interpretation, the term is considered readable on monomer A of the cited examples, inasmuch as GB '124 states that the norbornene derivatives with *two* or more chlorine atoms provide ring-opening polymerization products possessing excellent heat resistance and *flame retardant capability* (see, page 3, ll. 27-30). Thus, the reference differs from the claimed invention only in that in monomer B, the aromatic substituent is not condensed with the norbornene ring.

However, as noted above, GB '124 generically teaches aromatic norbornene derivatives and aromatic norbornadiene derivatives as alternative comonomers, and represents the latter by aromatic cyclic compounds containing the requisite condensed ring.

Given this teaching, there would have been a reasonable expectation of the condensed ring aromatic cyclic compounds of GB '124 performing equivalently to the aromatic norbornene derivatives as monomer B therein. Accordingly, substitution of the former for the latter derivative in the reaction mixture of GB '124 would have been obvious to one having ordinary skill in the art at the time of applicant's invention, with a reasonable expectation of obtaining an equivalent ring-opened polymer product.

Alternatively, even if the claim term "flame retardant" is narrowly construed to flame retardant compounds distinct from a cycloolefin monomer, GB '124 names flame retardants as a conventional additive that can be added (see page 21, ll. 25-27). Given this suggestion, it would have been obvious to an ordinarily skilled practitioner to further modify the noted embodiment(s) of GB' 124 through inclusion of a conventional flame retardant.

The obviousness of such further modification is further supported by Hara, who teaches specific *non-halogenated* flame retardants within applicant's claim 5 for addition to halogen-containing cycloalkanes to assist the flame retardancy of the latter. (Hara, page 13, ll. 53+.) Since Hara is similarly concerned with ring-opening polymerization of halogen-containing cycloalkenes, particularly chlorinated norbornene-type monomers (see Hara at page 1, ll. 12-15; page 3, ll. 5+ and pages 5-9), one would have been

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inclined to look to its teachings when seeking specific flame retardants for use in GB '124.

Regarding claims 4 and 6, note that use of crosslinking agents is contemplated by GB '124 (e.g., organic peroxide per page 21, ll. 10+), as is bulk polymerization of the monomers disclosed therein (see page 18, ll. 13+).

Based on the teachings of GB '124 and Hara as detailed above, the subject matter of claims 1-6 is held to have been *prima facie* obvious to one having ordinary skill in the art at the time of applicant's invention.


No claims are allowable at this time.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/12-28-06

  
FRED TESKIN  
PRIMARY EXAMINER  
1713